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Original Article

Association between borderline personality disorder traits and premenstrual syndrome

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Abstract

Introduction: The aim of this study is the association between borderline personality disorder and premenstrual syndrome in patients with borderline personality.

Methods: In this case-control study, 400 students at high schools stage of education in Tehran were randomly selected. All the female students were aged between 15-19 years, did not use oral contraceptive pill (OCP), regular menstrual cycles and cycle lengths (between 21-35 days). Premenstrual syndrome (PMS) PMS questionnaire and daily documentation of PMS symptoms questionnaire was completed by students in 2 menstrual cycles. How to record the exact symptoms of subjects were taught to patients. 168 Individuals (42%) with PMS diagnosis were observed as of the case study group. Subsequently, people with borderline personality disorder based on utility structured clinical interview for diagnostic and statistical manual of mental disorders (DSM) the structured clinical interview for DSM-IV (SCIDII) identification and prevalence rates in the two groups that were studied. For data analysis analytical test such as chi-square and ANOVA were used and $p < 0.05$ was considered as statistically significant level.

Results: The population in this study was 400 high school students who were randomly selected from the girls high schools in one area of Tehran. According to our result, distribution of patients with borderline personality disorder (BPD) and non-BPD patients according to disease severity of PMS**.** Based on statistical analysis, the frequency of patients with borderline personality disorder significantly relation (0.001) was more seen in students with PMS, and also there was a significant relationship between severity of PMS and borderline personality disorder (0.001).

Discussion: Finally, according to the surveys conducted in the relevant literature, a study has specifically, borderline personality disorder among people suffering from PMS, has not been evaluated.

Declaration of Interest: None.

Keywords: Borderline personality disorder, Premenstrual syndrome, Personality traits.

Introduction

Affective symptoms associated with the menstrual cycle, the term "tension" is used before menstruation and "premenstrual tension" is described in the last century. The first paper was found in 1931 to define these symptoms (1-5). Over the past two decades, a considerable number of studies have been examined the prevalence, origins and treatment of premenstrual syndrome (PMS) (6-12). Based on studies, that examining causes of PMS, it appears that (one of the significant factors), and these symptoms due to effects of fluctuating levels of sex hormones during the menstrual cycle had been created (11-18). One of the major psychiatric disorders, which may be associated with sex hormones etiology, is

borderline personality disorder (BPD). The key to diagnosis of this disorder is founding the instability in mood and disturbance of relationship between the individual and the individual's perception to self. These feelings can be quickly and easily motivated by the excitation intensity is higher than normal. Impulsive behavior, suicide attempts and self-injury, problems of identity and sense of futility is obvious in these patients (21-27). This disorder is called as borderline personality disorder features (BPD), because all symptoms are seen between psychotic disorder (psychosis) and (neurosis) (27). The etiology of BPD and the factors that cause these affects, completely are known. However, since several factors are considered, these factors include trauma in childhood (22-25), genetic factors and neurochemical disorders. About the role of genetic factors, many studies on twins can be suggested a hereditary nature of BPD is about 0.62 (11-20). Neurochemical disorders demand supply of serotonin, which can be associated with BPD disorder (19).

Some studies are discussed about psychodynamic model for BPD, and they knows BPD as disruption defects in the relationship between mother and child that is born in the first years of life. Some studies discussed the limbic system dysfunction as the cause of instability and emotion regulation. This system can be influenced by genetic factors, intrauterine events, and brain development disorders in childhood. Some researchers believe that chronic sexual abuse and other extreme events and other recurring similar effect patients with BPD than other people. Therefore, these causes can alter the physiology of the limbic system and causes negative effect on feeling (9-27). A study conducted in 2003 by De Soto et al. (19) is showed that fluctuations in estrogen levels can affect the symptoms of BPD. BPD can be associated with premenstrual syndrome as well (19-20).

The fact that the prevalence of BPD in women is three times more than men and the difference between the start of the monthly cycle in women during the reproductive years BPD starts and also the impressed by the volatility hormones symptoms especially (estrogen) (19). Another reason could be the role of sex hormones in the occurrence of disease and other disorders associated with the disorder may be related to sex hormones such as PMS. Therefore, this is a great explanation for the apparent differences in rates of psychiatric disorder in the young female population than male population. According to need for promoting Women's Mental Health, the relationship between sex hormones in causing the disorder that has been studied and this effect had been proven. Thus, the association between BPD and identification and treatment of PMS, a major component of mental health promotion programs for teenage girls and women. Therefore, this study was aimed to identify the association between borderline personality disorder and premenstrual syndrome in patients with borderline personality.

Methods

In this case-control study, 400 students at high schools stage of education in Tehran were randomly selected. All the students were aged between 15-19 years, did not use OCP, regular menstrual cycles and cycle lengths (between 21-35 days). After providing basic information to objectives and described the methods of study, PMS questionnaire and daily documentation of PMS symptoms questionnaire was completed by students in 2 menstrual cycles. How to record the exact symptoms of subjects were taught to patients. Individuals with PMS diagnosis (based on the daily checklist of symptoms PMS) were observed as of the case study group. Subsequently, people with borderline personality disorder based on utility (SCIDII) identification and prevalence rates in the two groups that were studied. The tools below are used in this study were a questionnaire of a provisional diagnosis of PMS:

1. Significantly depressed mood
2. Significant anxiety, tension, feelings of impatience
3. Feeling unstable and intense feeling of sadness suddenly
4. sequential or outright anger or irritability or increased interpersonal conflict
5. Loss of interest in daily activities such as work, school, friends and entertainment
6. Subjective feeling of difficulty in concentrating
7. Lethargy, fatigue or loss of energy dramatically
8. Marked change in appetite
9. Constant sleeping or nightmares
10. The feeling of being out of control

11. Physical symptoms such as breast tenderness or swelling, headaches, joint or muscle pain, feeling of bloating or weight gain.

DSR form:
Standard form that includes the 18 symptoms of PMS and DSM-IV has been adapted. Symptoms include stress, freak, irritability, anxiety, depression, restlessness, crying unnecessary, difficulty concentrating, difficulty sleeping, fatigue, excessive desire to eat sweets, the desire to commit suicide, headache, increased appetite, palpitations, sore breasts, abdominal bloating and swelling of the extremities had been evaluated. The form is contained 18 rows (symptoms of PMS) and 35 columns (days of the menstrual cycle). Intensity is defined as follows:
In order to measure the severity of each symptom in each case of the study during each menstrual cycle (within 7 days of the first day of the 2 cycle) maximum symptoms intensity was considered to be between 2 cycles and were averaged. Consequently, the mean of maximum intensity of all symptoms was calculated and converted to a fraction of 100. A score below 33 % was mild, moderate was between 33% to 66% and above 66% were considered as severe. Another tool that was used in this study is the SCID II. This means a structured diagnostic interview is to detect 11 types of personality disorder in DSM-IV Axis II. Implementation requires clinical judgment of the interview, the interviewer on the interviewee's responses. The content validity was conducted by a group of professionals. Data using statistical software SPSS version 18. Analytical test such as chi-square and ANOVA were used and $p < 0.05$ was considered as statistically significant level.

Results

The population in this study was 400 high school students who were randomly selected from the girl's high schools in one area of Tehran city (the capital of Iran). All the students were aged between 18-15 years and the mean age 17.21 (the year), the average age of menarche in the population of 12.92 (the year); the mean time of exercise was 1.63 minutes per week.

Table 1. Socioeconomic characteristics of the study population

Education grade	Human sciences	mathematical sciences		experimental sciences	
	42.5%	31.8%		25.8%	
Economic status	High	Moderated		Low	
	34%	64.3%		1.8%	
Fathers education level	University study	Diploma	Under diploma	Illiterate	
	5%	58%	58.5%	8.5%	
mother education level	2%	21.8%	63.8%	12.5%	
Fathers job	Death	Retired	Employee	Self-employee	Unemployed
	1%	6.3%	27.3%	62%	3.5%
Mother job	Employee	Self-employee		House wife	
	3.5%	2.8%		93.8%	

168 subjects (42%) was suffering from PMS, and 232 subjects (58%) was without PMS (based on provisional diagnosis of PMS, and results of daily symptoms questionnaire of PMS).
Based on the average daily symptom scores in the form of daily PMS symptoms, the people with the milder disorder, 4%, 25.5% as moderate, and 12.5% of patients had a severe form of PMS.
The next step in the diagnosis of borderline personality disorder with a clinical interview (based on the SCID II questionnaire for borderline personality disorder) in both group PMS and non-PMS students. 224 patients (56%) of 176 patients with BPD and 44% were non-BPD. The following table shows the distribution of patients with BPD and non-BPD patients according to disease severity of PMS. According to the results, the basic characteristics (such as age, profession, education level of parents, occupation of parents, socioeconomic status, age at menarche duration of exercise) and the presence or absence of PMS and the

presence or absence of borderline personality disorder had not shown any significant correlation.
Based on statistical analysis, the frequency of patients with borderline personality disorder significantly (0.001) was more seen in students with PMS, and also there was a significant relationship between severity of PMS and borderline personality disorder (0.001)
The positive answers in SCID II questionnaire had significant relationship with severity of PMS (0.001). Thus, patients who had positive reply was more seen in patients with severe PMS (0.001), moderated PMS (0.001), than patients without PMS. This difference was significant between PMS and non-PMS (0.047), but this difference about positive answers was not significant between mild PMS and non-PMS patients (0.134), moderated PMS and mild PMS patients (0.655) and severs PMS patients [Sig: 0.311]. Positive responses in SCID II questionnaire on all items (except 9items), is significantly higher among patients with SCID II than not affected (0.001).

Conclusion

The results of our study, has indicated that a greater frequency of borderline personality disorder among patients with PMS than non-PMS. Thus, this article is confirmed that PMS can produce more severe borderline personality disorder and with more positive responses to the questionnaire, SCID II was increased in proportion to the severity of PMS. The increase in the number of positive responses, in student with moderate to severe PMS compared with non-PMS is considerable. The differences between the compared groups of patients with severe PMS and a group with mild PMS were also significant.
However, this difference in response to questions in patients with mild PMS, compared with non-PMS students was not significant. To this point, the few studies have reported the examination of the role of sex hormones in the development and exacerbation of fluctuations BPD. Di Su et al. (2003) noted that BPD symptoms in women who taking OCP significantly more than those who do not use that ($p < 0.01$), Desoto et al. (19) is shown that the severity of BPD symptoms with estrogen levels. Based on these results, the fluctuating levels of estradiol had significant correlation with the severity of BPD symptoms ($p < 0.01$), but the relationship between the absolute levels of estrogen (up and down) and severity of BPD symptoms was not statistically significant ($p>0.2$). In this study, starting OCP in patients who were already predisposed to BPD, increasing the severity of symptoms.
Furthermore, in another study, it has been shown that greater degree of changes in salivary estradiol levels in women who have reported more PMS instability is seen and theory of borderline personality disorder is made up, so borderline personality disorder may be affected by sexual hormonal changes (20). In another study, it was suggested, the impaired metabolism of androgens in patients with BPD. Therefore, this study showed that the prevalence of BPD was more correlated with in PCO using, and fluctuation of blood levels of testosterone, free testosterone, and androstenedione and 17-hydroxyl progesterone in patients with BPD compared with controls (26).
All the above studies mentioned confirm the influence of fluctuations in sex hormones, particularly estrogen on BPD symptoms and can cause other problems associated with this disorder, such as PMS. PMS also had been associated with other psychiatric disorders. Thus, Perry et al. (1996) in a study of 15 women with personality disorder Late Luteal Phase Dysphoric Disorder (LLPDD) compared with 15 women in the control group with Millon Clinical Multiaxial Inventory (MCMI), are shown that women with LLPDD have less obsessive disorder. However, periodic boundary characteristics (borderline/cycloid), (passive-aggressive), depression and hypophia are more prevalent in this group (23).

In 2001, Berlin et al. study, the influence of the variability of the menstrual cycle in women with PMS and women of character who did not suffer from PMS had been determined. This article confirmed that general personality disorder in women with PMS in the follicular phase and the luteal phase is higher than the control group. Thus, women with PMS had also an apparent increase in the severity of personality disorder in follicular phase and the

luteal phase. In this study, Personality Diagnostic Questionnaire-Revised (PDQ-R) is used for personality disorder studying but has not been studied separately for borderline personality disorder (21).

In article by freeman et al., prevalence of schizophrenia, depression and borderline personality disorder in PMS women had been evaluated. Borderline personality were seen in 28 women who have PMS criteria, 12 women had experienced depression and borderline personality and 9 women (75%) PMS had abnormal sexual biography (25).

Although none of the studies, did not directly conducted to evaluate association of BPD and PMS. However, according to the results of the above studies, the relationship between premenstrual syndrome as a clinical syndrome (borderline personality disorder as a psychological disorder) had been associated with significant changes in sex hormones such as estradiol levels.

In two studies (22, 24) there was no significant relationship between BPD and PMS, these studies are not impacted our study result.

Finally, according to the surveys conducted in the relevant literature, a special report has not been evaluated for borderline personality disorder among people suffering from PMS. This issue is addressed in the present study. However, as there are limitations in the present study is the population aged 15-18 years. In this case, the personality traits are not fully developed at this age, which will affect the diagnosis. On the other hand, since some of the traits of borderline personality disorder include impulsivity, instability, posterior instability in interpersonal relationships, adolescence can be seen as a transitional period, it can lead to over-diagnosis of borderline personality disorder (may false in this age range). Therefore, it is recommended that future studies of the population are chosen among the adult population.

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